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(FILE 'HOME' ENTERED AT 14:48:31 ON 15 DEC 2003)

FILE 'CA, CAPLUS' ENTERED AT 14:48:49 ON 15 DEC 2003

L1 257510 S GC OR (GAS CHROMATOGR?)
L2 2182 S L1 AND MODULAT?

FILE 'REGISTRY' ENTERED AT 14:50:17 ON 15 DEC 2003

L3 1530 S CARBON DIOXIDE

FILE 'CAPLUS' ENTERED AT 14:50:28 ON 15 DEC 2003

L4 4 S L2 AND (VALV? OR SPRAY?) AND ((CARBON DIOXIDE) OR L3)
L5 0 S HAGLUND?/AU AND EFFECTS.TI.
L6 39 S HAGLUND?/AU AND EFFECTS/TI

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
41.95	65.27

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-3.26	-3.26

CA SUBSCRIBER PRICE

L4 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:757948 CAPLUS
 DN 139:239284
 TI Single jet, single stage cryogenic **modulator**
 IN Zilioli, Giacinto; Beens, Jan
 PA Thermo Finnigan Italia S.P.A., Italy
 SO PCT Int. Appl., 25 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003079001	A1	20030925	WO 2002-IB2787	20020718
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI IT 2002-MI549 A 20020315

AB This invention relates to a **modulator** for use in gas chromatog. analyses, in particular for comprehensive two-dimensional gas chromatog., adapted to alternatively trap and release fractions of solutes in a length of a capillary column within a chromatog. oven, comprising one nozzle placed to **spray** one jet in one corresponding capillary column section along said capillary column length, said nozzle being connected to a source of liq. CO2 and means for alternatively causing a jet of gaseous CO2 to impinge during a predetd. time on said capillary column section and to leave the oven atm. to heal said capillary column section after said predetd. time. By controlling said capillary column section cooling time by the single jet and said column section heating time by the oven atm. in each **modulation** cycle comprising a heating time and a cooling time a perfect **modulation** of the sample fractions can be obtained.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2003:757946 CAPLUS
 DN 139:239283
 TI **Modulator for gas chromatography**
 IN Zilioli, Giancinto
 PA Thermo Finnigan Italia S.P.A., Italy
 SO PCT Int. Appl., 11 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003078999	A2	20030925	WO 2003-IB846	20030310
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	IT 2002-MI548	A	20020315		
AB	The invention concerns a modulator for use in gas chromatog. analyses, specially analyses in two-dimensional gas chromatog., able to alternatively trap and release fractions of solutes in a section of a capillary column inside a gas chromatog. oven, including at least one nozzle disposed in such a way as to spray at least one jet of cryogenic gas on the outside of said section of capillary column. Said nozzle is provided with relative movement as regards said column section, at a controlled speed, at least in the same direction of elution of the analysts inside the column.				

L4 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2002:368760 CAPLUS
 DN 136:379286
 TI **Modulator for gas chromatography**
 IN Beens, Jan
 PA Thermo Finnigan Italia S.p.A., Italy
 SO PCT Int. Appl., 26 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002039106	A1	20020516	WO 2001-IB2253	20011128
	W: JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	EP 1344054	A1	20030917	EP 2001-984553	20011128
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	US 2003100124	A1	20030529	US 2002-70544	20020416
PRAI	WO 2000-IT532	W	20001219		
	WO 2001-IB2253	W	20011128		

AB This invention relates to a **modulator** for use in gas chromatog. anal., adapted for alternatively trapping and releasing fractions of solutes in a length of a capillary column within a chromatog. oven, characterized in that it comprises at least one nozzle placed to **spray** at least one jet in at least one corresponding place along said capillary column length, said nozzle (s) being connected each to a source of liq. CO2 via a related **valve**, and means for alternatively opening said **valve** (s) for a predetd. time, to cause a jet of liq. CO2 to impinge for said predetd. time on said column place and to leave the oven atm. to heat said column place after said predetd. time. The **modulator** can be used in a conventional GC system or in a two dimensional GC system, for **modulating** the analytes fed to the 2nd capillary column.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 39 CAPLUS COPYRIGHT 2003 ACS on STN
 AN 2002:474685 CAPLUS
 DN 137:256996
 TI **Effects** of temperature and flow regulated carbon dioxide cooling
 in longitudinally modulated cryogenic systems for comprehensive
 two-dimensional gas chromatography
 AU **Haglund, Peter**; Harju, Mikael; Danielsson, Conny; Marriott,
 Philip
 CS Department of Chemistry, Environmental Chemistry, Umea University, Umea,
 SE-901 87, Swed.
 SO Journal of Chromatography, A (2002), 962(1-2), 127-134
 CODEN: JCRAEY; ISSN: 0021-9673
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB Two different modes of temp. regulation in longitudinally modulated
 cryogenic systems (LMCSs) for comprehensive two-dimensional gas chromatog.
 (GC.times.GC) were compared. Carbon dioxide was used as coolant. In the
 first mode of operation, the temp. of the trap was regulated to a pre-set
 temp. using a digital temp. controller ("the const. temp. mode"). In the
 second, the temp. was regulated to a fixed neg. offset to the oven temp.
 by using a const. flow of CO2 ("the const. flow mode"). A no. of problems
 were occasionally obsd. using the const. temp. mode: (1) severe band
 broadening of high boiling analytes in the second dimension; (2)
 non-Gaussian reconstructed first-dimension peak profiles; (3) high
 background due to modulation of first-dimension column bleed. It was
 concluded that these problems were assocd. with inefficient solute
 remobilization at low LMCS trap temps. (1 and 2) or large trap temp.
 fluctuations (3). These problems could be avoided or significantly
 reduced by using the const. flow mode. Best results were obtained as the
 trap temp. was kept about 70 .degree.C below the oven temp.
 RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

	Type	L #	Hits	Search Text	DBs	Time Stamp	Record Comments	Errors
1	BRS	L 1	4	beens.in. and modulator.ti.	USPAT; US-P GPUB ; EPO; JPO; DERW ENT	2003/12/1 5 14:30		0
2	BRS	L 2	2268	436/161.ccls. or 422/89.ccls. or (96/101-104).ccls. or (95/82,86,87).ccls.	USPAT; US-P GPUB ; EPO; JPO; DERW ENT	2003/12/1 5 14:32		0
3	BRS	L 3	22	2 and ((cool\$3 or freez\$3 or cryogen\$6 or modulat\$5 or trap\$3) same ("carbon dioxide" or CO) same valv\$3)	USPAT; US-P GPUB ; EPO; JPO; DERW ENT	2003/12/1 5 14:41		0
4	BRS	L 4	0	2 and ((cool\$3 or freez\$3 or cryogen\$6 or modulat\$5 or trap\$3) same (. "CO .sub. 2") same valv\$3)	USPAT; US-P GPUB ; EPO; JPO; DERW ENT	2003/12/1 5 14:41		0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
5	BRS	L 5	7	2 and ((cool\$3 or freez\$3 or cryogen\$6 or modulat\$5 or trap\$3) same ("CO.sub.2") same valv\$3)	USPA T; US-P GPUB ; EPO; JPO; DERW ENT	2003/12/1 5 14:42			0